

SERVICE  
MANUAL **PM450**

**marantz®**

model **PM450**

*Stereo Console Amplifier*

## MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ has created the ultimate in stereo sound. Only original MARANTZ parts can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

### ORDERING PARTS

Phone orders will eliminate mail delays, and we encourage the use of this method. If you order by mail, use MARANTZ parts order forms which are available from our National Parts Depot located at the following address:

The following information must be supplied to eliminate delays in processing your order:

1. Complete address.
2. Complete part numbers.
3. Complete description of parts.
4. Model number for which part is required (indicate MARANTZ).
5. Account number (for account customers only).

Direct consumers will be provided with the current retail price quotation on available parts in order to advise them of the cost of the parts and shipping.

### OVERSEAS PARTS ORDERING

Parts may also be ordered from the following overseas addresses:

**Marantz Australia**  
32 Cross Street  
Brookvale, N.S.W. 2100  
Australia

**Marantz Germany GmbH**  
Max-Planck-Straße 22,  
D-6072 Dreieich  
West Germany

**Marantz Audio U.K., Ltd.**  
193, London Road  
STAINES, Middlesex  
United Kingdom

**Marantz Svenska A.B.**  
Franzengatan 6  
10425 Stockholm  
Sweden

**Marantz Europe, S.A.**  
326, Avenue Louise  
Boite 32  
1050 Brussels  
Belgium

**Marantz Belgium**  
45 Rue Auguste Van Zande  
1080 Brussels  
Belgium

**Marantz France**  
4 Rue Bernard Palissy  
92600 Asnieres  
France

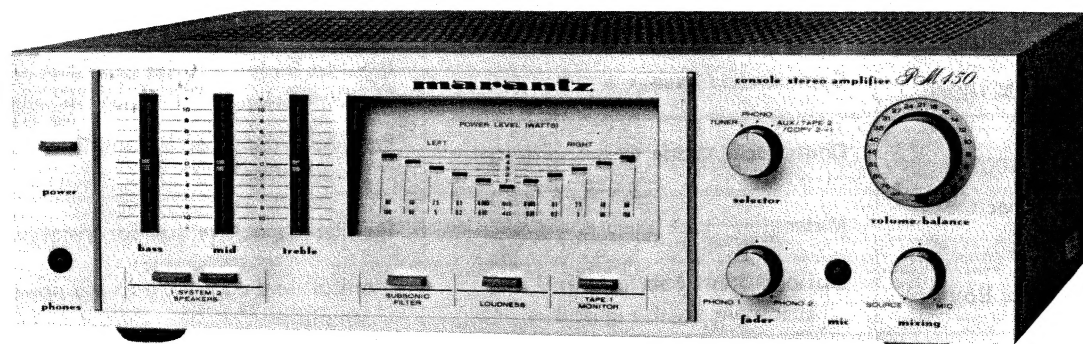
**Marantz Norske A.S.**  
Refstadalleen 13  
Oslo 5  
Norway

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

**marantz®**

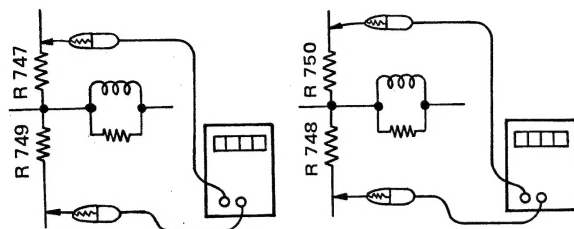
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## 1. ADJUSTMENT PROCEDURE

### 1.1 Idling Current Adjustment



	L ch	R ch
Test Point	Between R747 and R749	Between R748 and R750
Adjustment	6 mV	6 mV

#### Procedure

Set the volume control to minimum. One minute after turning the power switch on, adjust so that 6 mV is obtained at each test point.

### 1.2 Power Meter Adjustment

	L ch	R ch
Adjustment	RX07	RX08

#### Procedure

- 1) Connect an 8 ohm load to the speaker terminals and apply a 1 kHz signal to the AUX jacks.
- 2) Set the volume control to the maximum and adjust the input so that the speaker output is 17.9V.
- 3) Turn RX07 and RX08 until just before QX18 and QX19 light.
- 4) Decrease the input and increase it again to confirm that QX18 and QX19 light up when the output is 18.5V.

Table 1. Test Equipment Required for Servicing

Item	Manufacturer and Model No.	Use
Distortion Analyzer Audio Oscillator AC Voltmeter	Sound Technology Model 1700B	Distortion Measurements Sinewave and squarewave signal source voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting and ASO alignment
Circuit Tester		Trouble shooting
DC Voltmeter	Fluke Model 8000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to amplifier
AC Ammeter	Commercial Grade (1 ~ 10A)	Monitors amplifier output under short circuit condition
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to amplifier
Variable Autotransformer	Superior Electronic Co., Powerstet Model 116B-10A	Adjusts level of primary power to amplifier
Shorting Plug	Use phono plug with 600 ohm across center pin and shell	Shorts amplifier input to eliminate noise pickup
Output Load (8 ohms, $\pm 0.5\%$ 100W)	Commercial Grade	Provides 8-ohm load for amplifier output termination
Output Load (4 ohms, $\pm 0.5\%$ 100W)	Commercial Grade	Provides 4-ohm load for amplifier output termination
Output Load Capacitor (0.5 mfd)	Mylar	Provides capacitive load for instability checks
AC Power Control Box	Optional Item. Fabricate in accordance with Figure 1	Monitors and controls primary power for amplifier
Amplifier Output Load Box	Optional Item. Fabricate in accordance with Figure 2	Provides various amplifier loads and can monitor shorted output



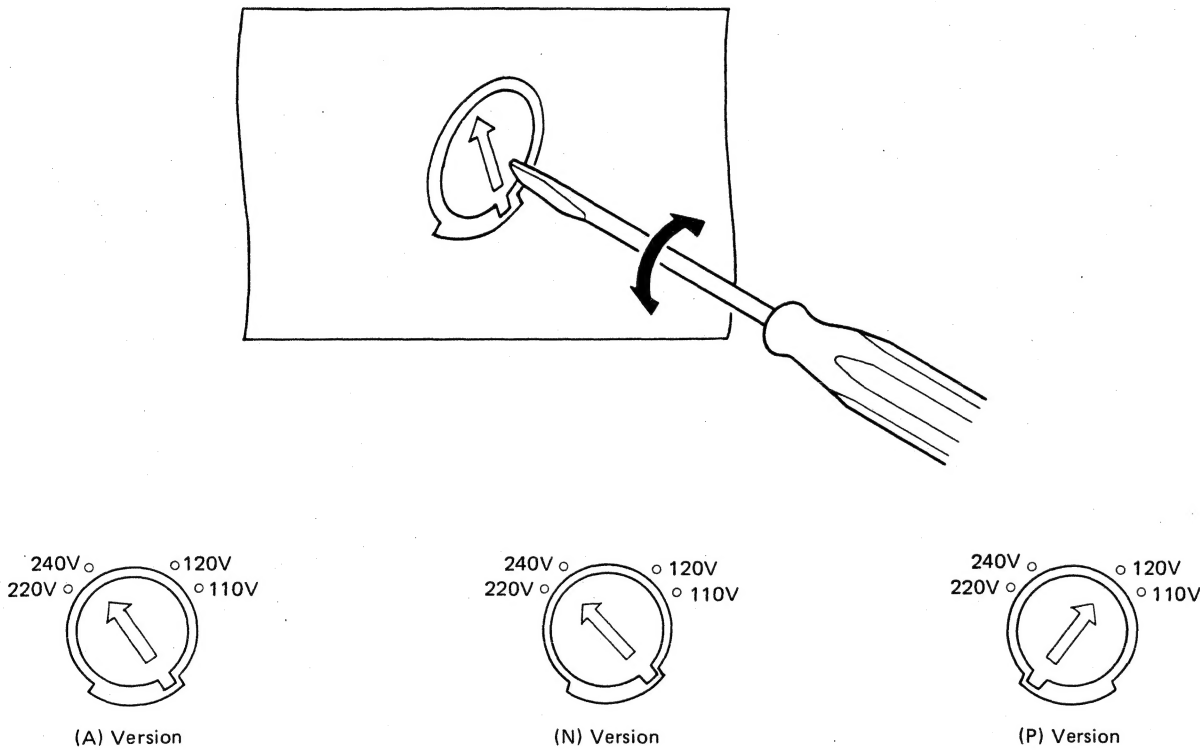
2. VOLTAGE CONVERSION

• EUROPEAN MODEL ONLY

To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

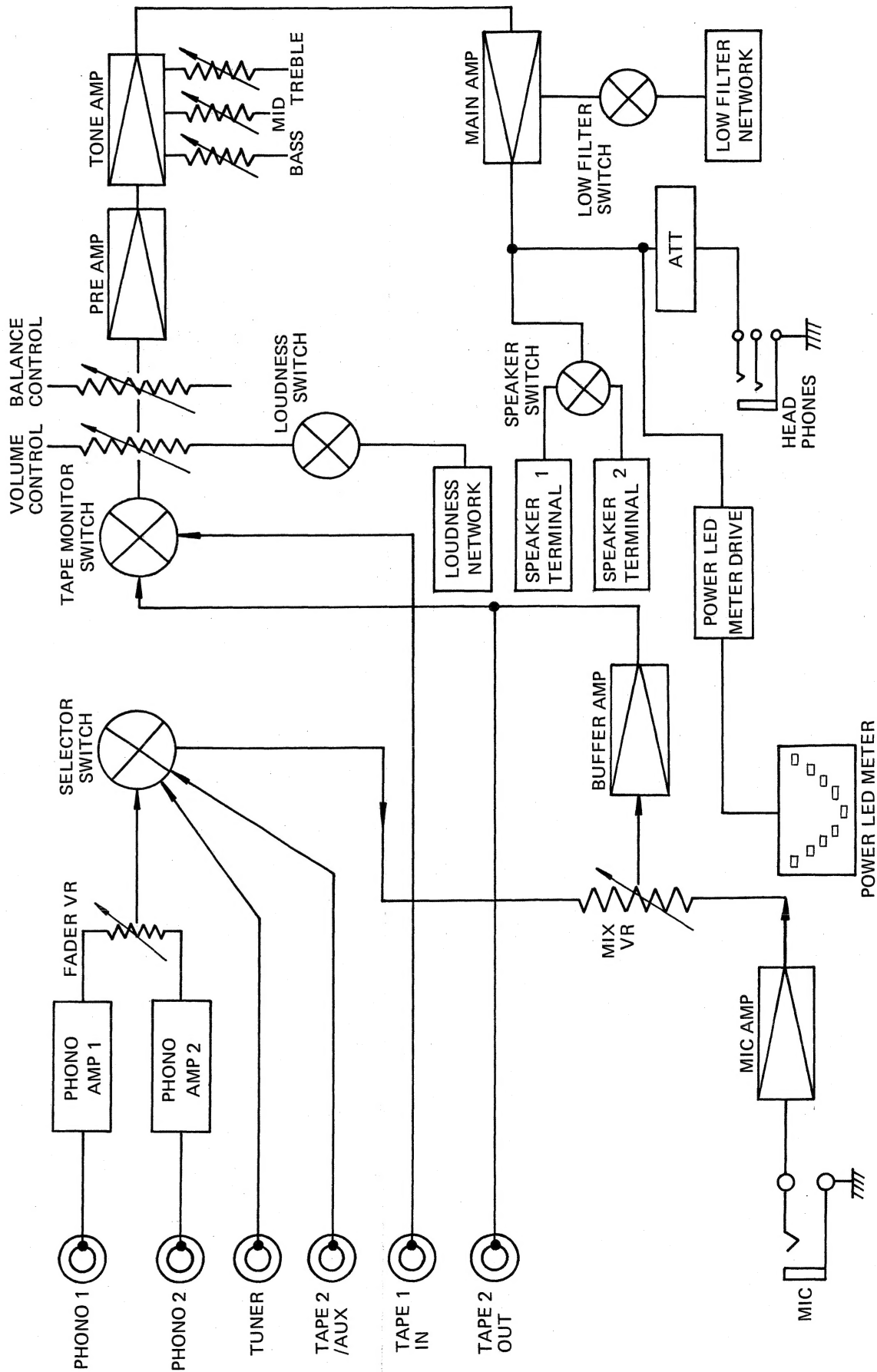
**CAUTION**  
DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

Voltage Conversion Chart



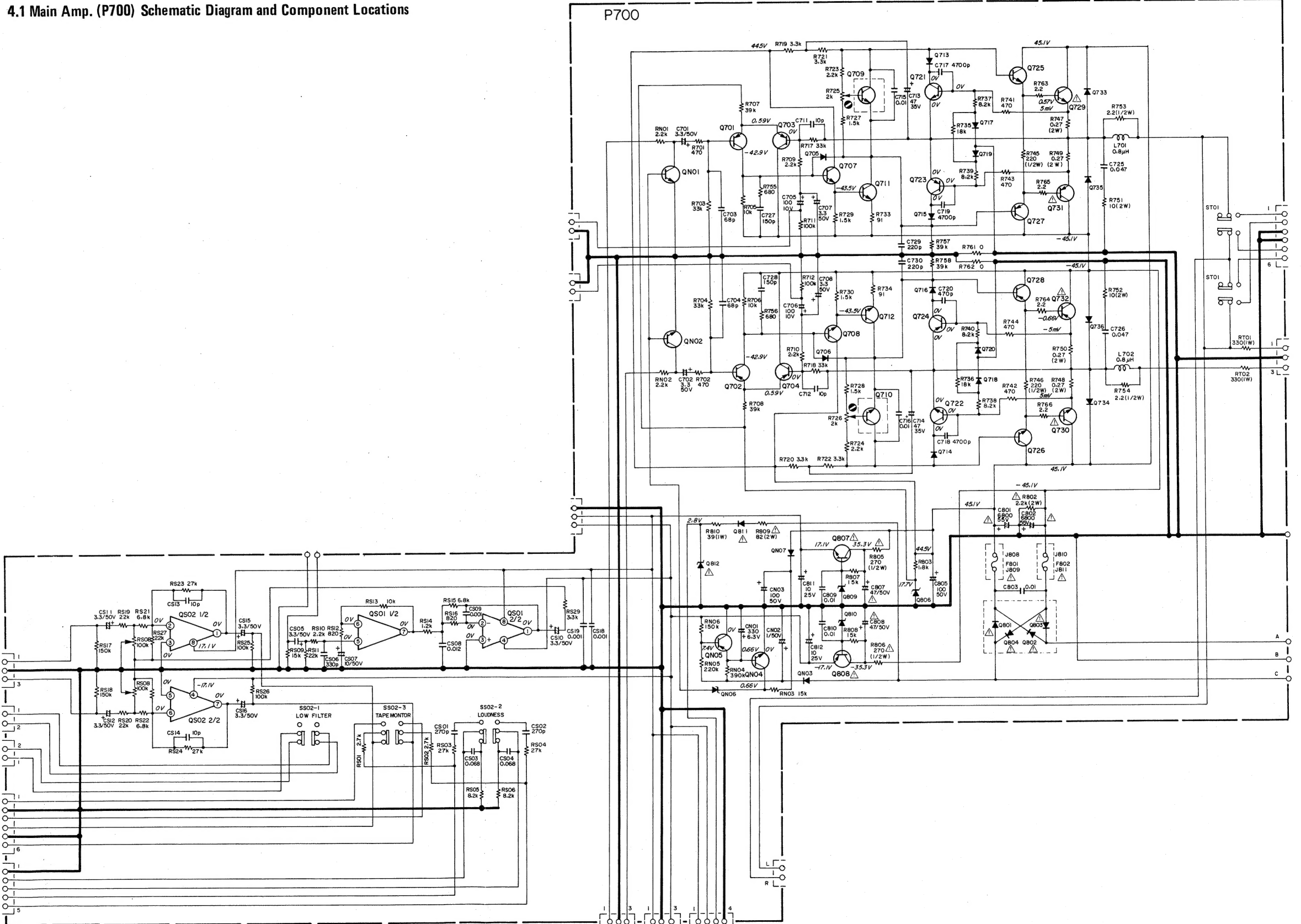
Note on safety: The parts marked with  $\triangle$  are important parts on the safety. Please use the parts having the designated parts number without fail.

3. BLOCK DIAGRAM



#### 4. DIAGRAM AND COMPONENT LOCATIONS

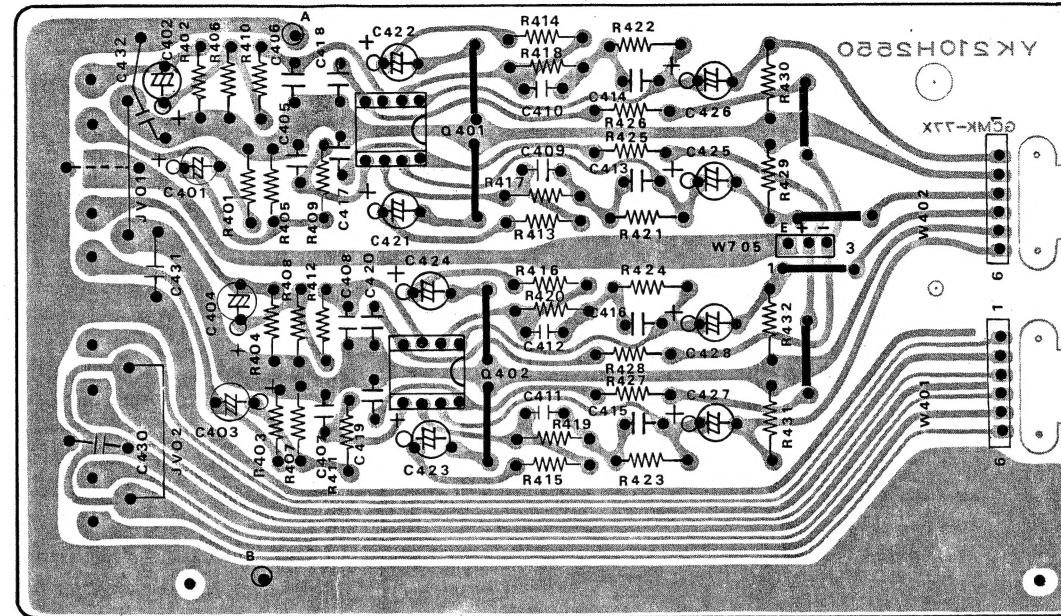
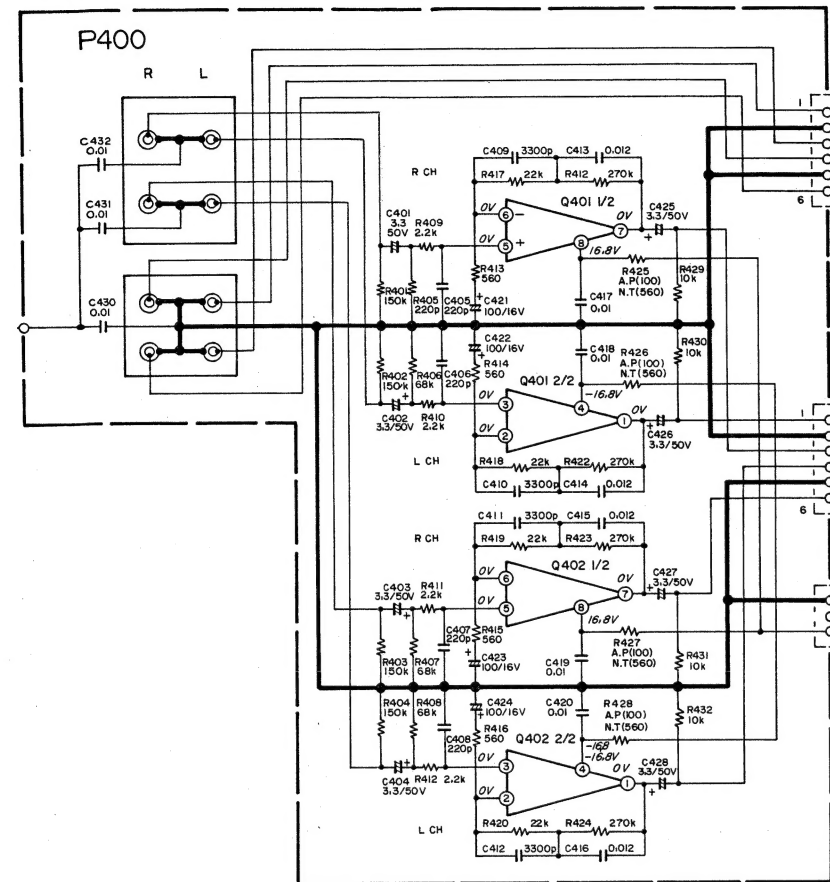
#### 4.1 Main Amp. (P700) Schematic Diagram and Component Locations



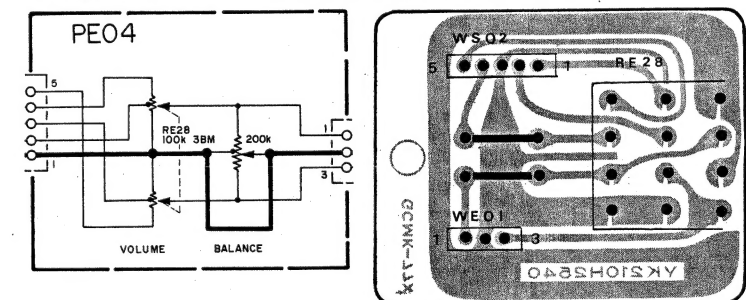




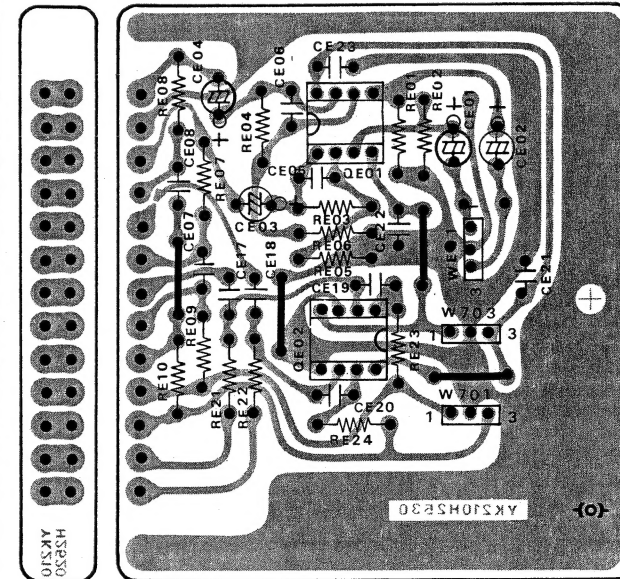
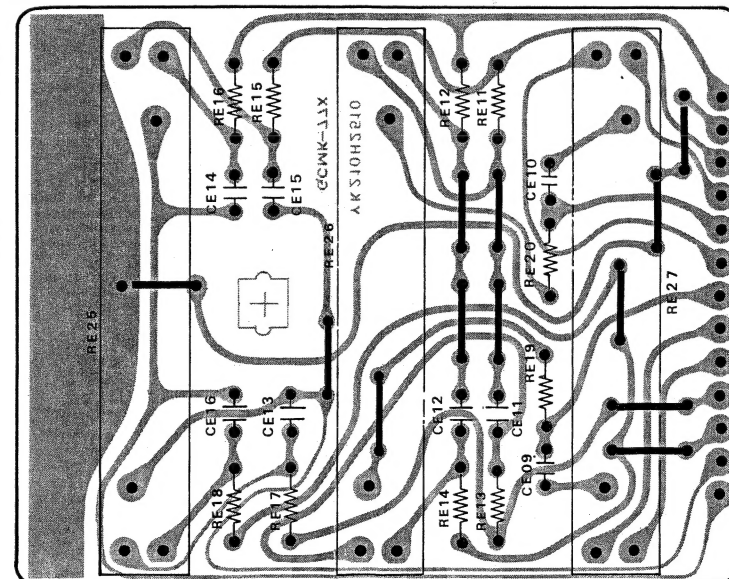
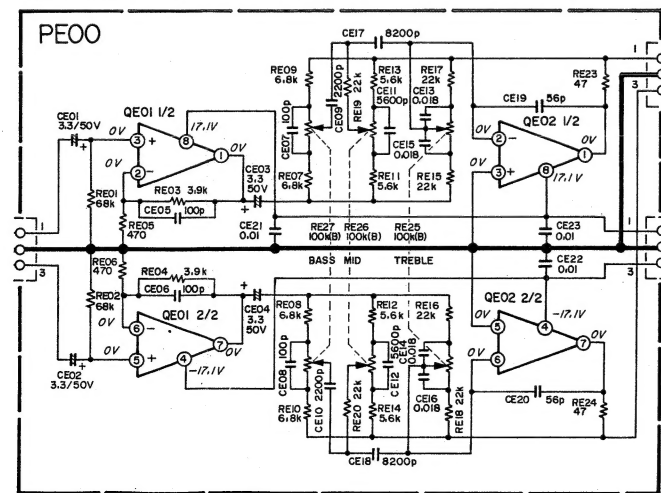
#### 4.2 Phono Amp. (P400) Schematic Diagram and Component Locations



#### 4.4 Main VR. (PE04) Schematic Diagram and Component Locations



#### 4.3 Tone VR. (PE01) Connection (PE02) Tone Amp. (PE03) Schematic Diagram and Component Locations

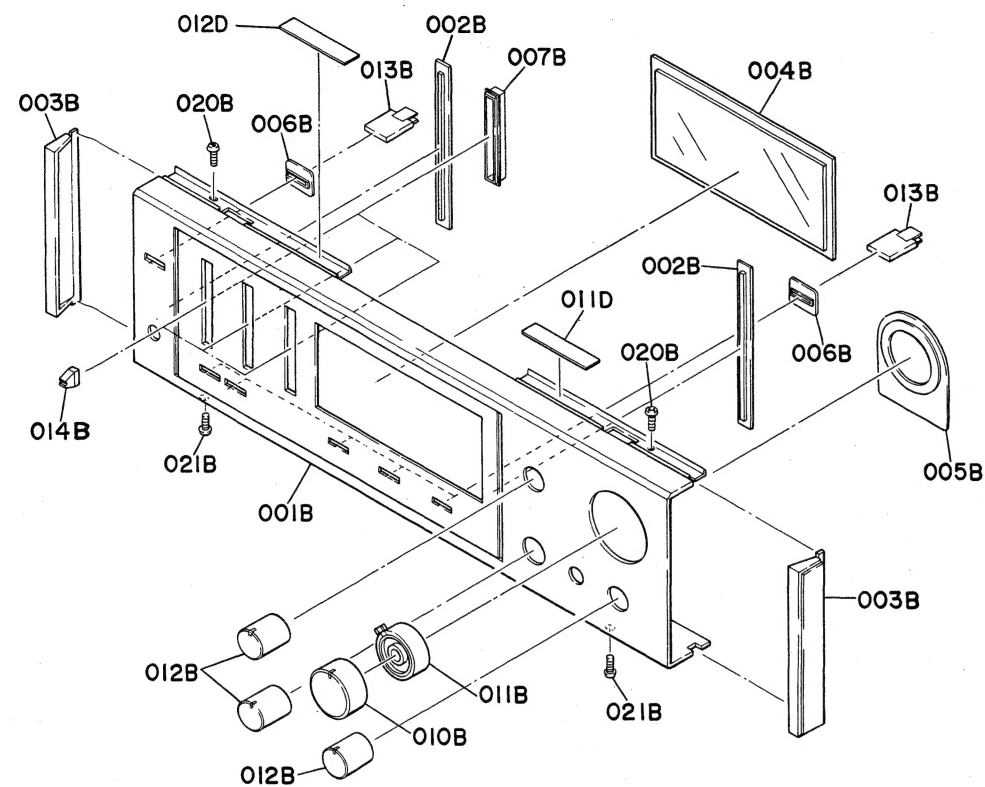






5. EXPLODED VIEWS AND PARTS LIST

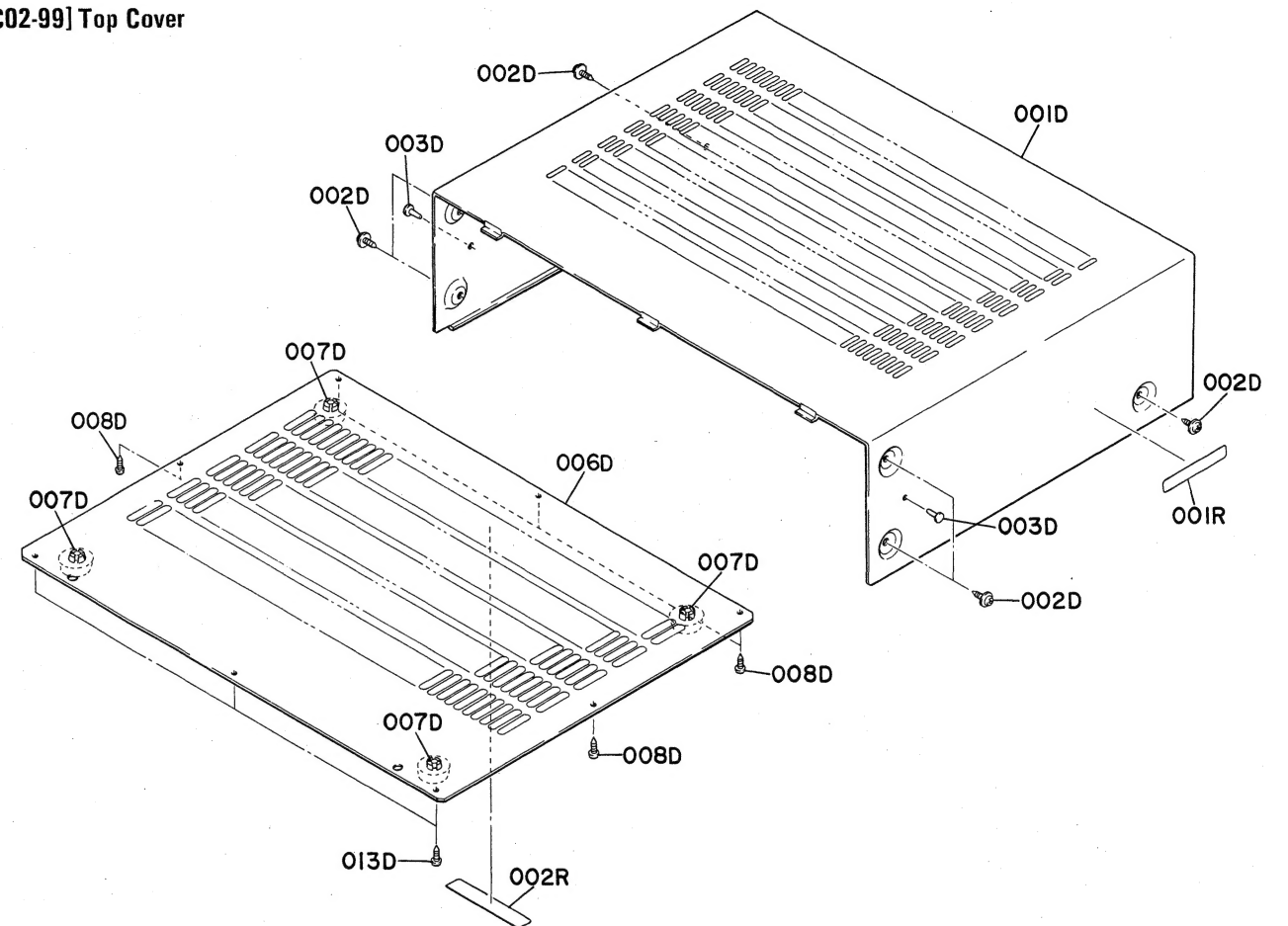
[C01-99] Front Panel



REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
A	1	1	1	1	210H063400	Front Panel Assembly
001B	1	1	1	1	210H063400	Escutcheon, Front Panel
002B	2	2	2	2	211H063020	Escutcheon
003B	2	2	2	2	211H067010	Cap
004B	1	1	1	1	211H158010	Window, Power LED
005B	1	1	1	1	208H063020	Escutcheon, Volume
006B	6	6	6	6	208H259010	Bushing, Push Switch
007B	3	3	3	3	2129259020	Bushing, Slide Volume

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
010B	1	1	1	1	208H154030	Knob, Volume
011B	1	1	1	1	208H154040	Knob, Volume
012B	3	3	3	3	208H154020	Knob, Rotary Switch
013B	6	6	6	6	208H154060	Knob, Push Switch
014B	3	3	3	3	208H154050	Knob, Slide Volume
020B	2	2	2	2	51280308B0	B.H. Tapped Screw B3 x 8
021B	2	2	2	2	51280308B0	B.H. Tapped Screw B3 x 8
011D	1	1	1	1	2965118010	Spacer
012D	1	1	1	1	211H118010	Spacer

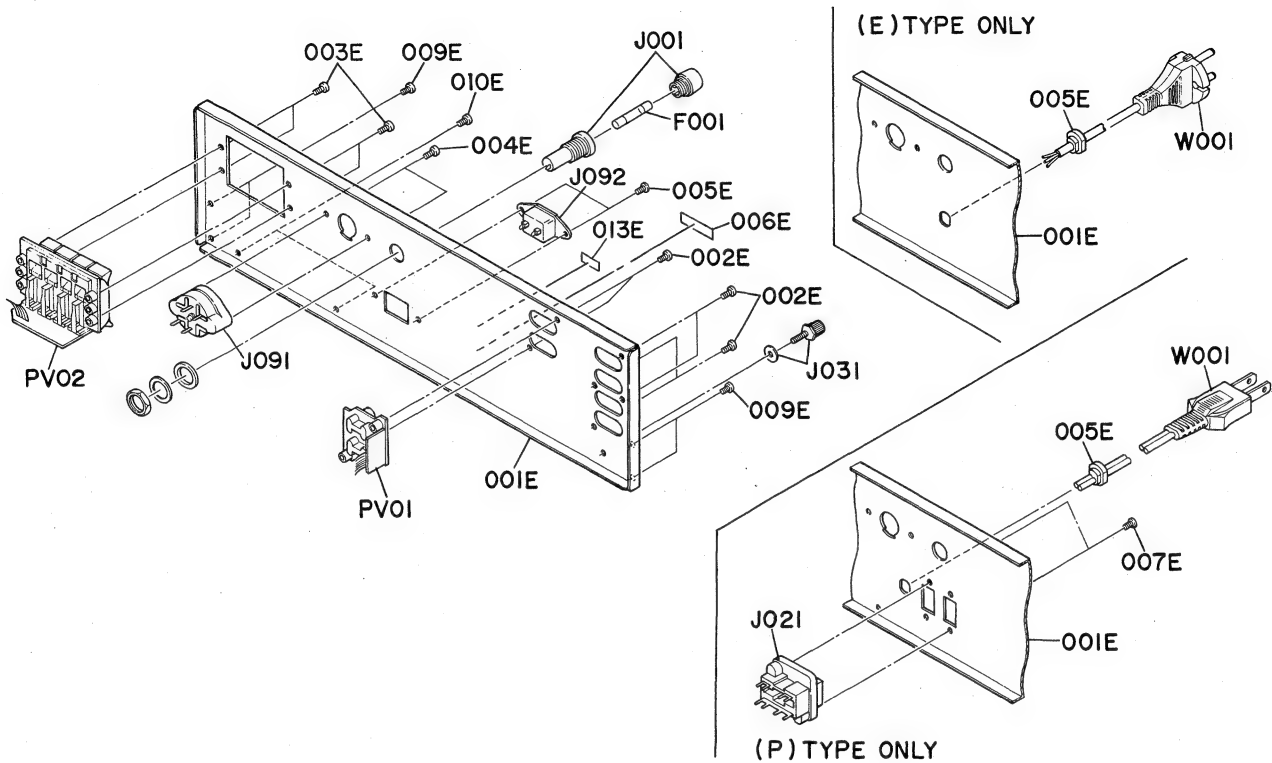
[C02-99] Top Cover



REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
001D	1	1	1	1	211H257010	Lid, Top Cover
002D	6	6	6	6	51260408U0	B.T. Screw B4 x 8
003D	2	2	2	2	2991259010	Bushing
006D	1	1	1	1	211H257020	Lid, Bottom Cover
007D	4	4	4	4	403H057010	Leg
008D	5	5	5	5	51280308B0	B.H. Tapped Screw B3 x 8
013D	3	3	3	3	51280308B0	B.H. Tapped Screw B3 x 8

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
001R	1	1	1	1	2932861110	Label
002R	1	1	1	1	2578861010	Label

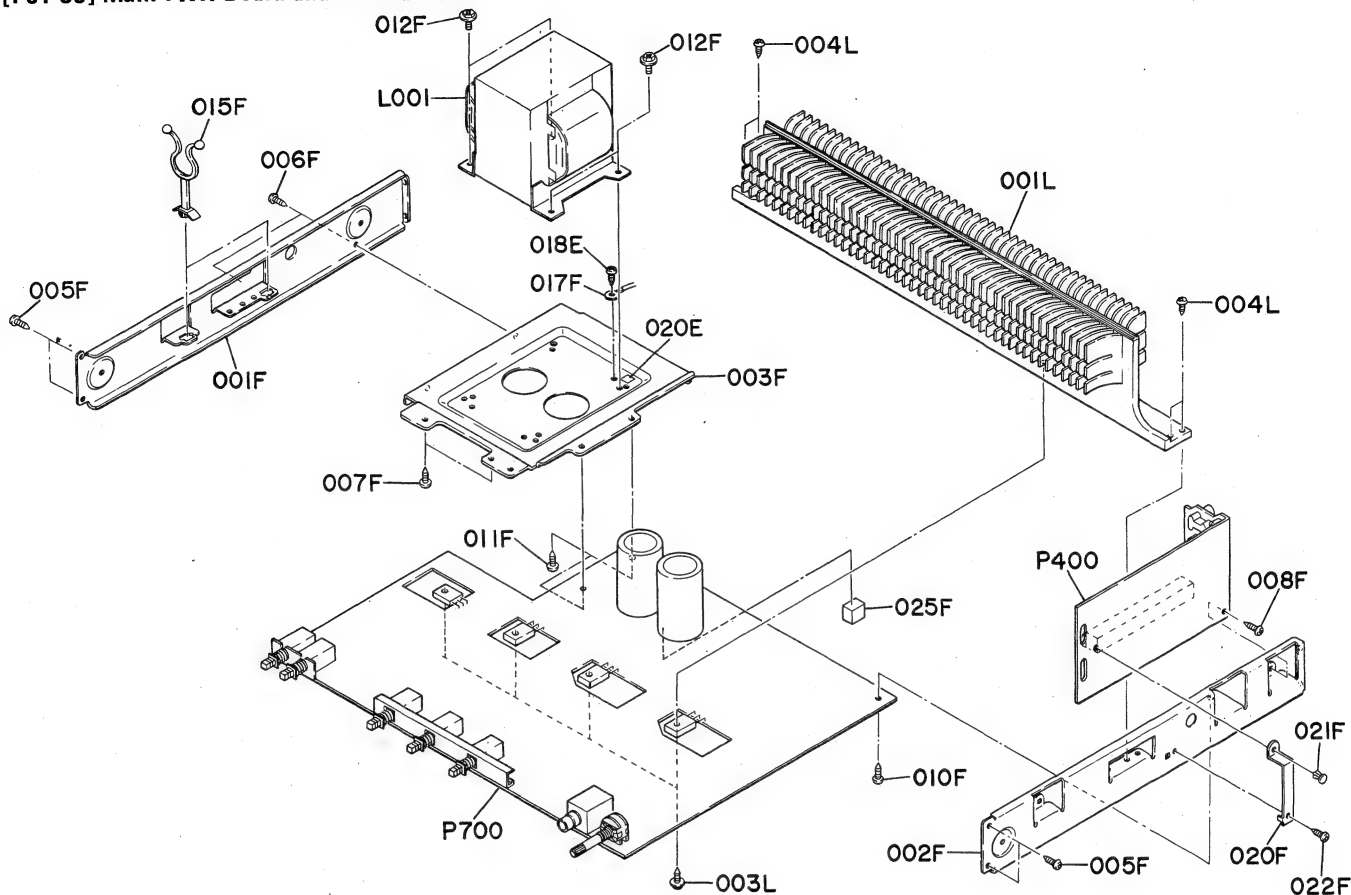
### [C03-99] Rear Panel



REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
001E	1				210H160220	Bracket, Rear Panel
001E		1			210H160240	Bracket, Rear Panel
001E			1		210H160230	Bracket, Rear Panel
001E				1	210H160250	Bracket, Rear Panel
002E	6	6	6	6	51280308U0	B.H. Tapped Screw B3 x 8
003E	4	4	4	4	51280308U0	B.H. Tapped Screw B3 x 8
004E	2	2	2	2	51280308U0	B.H. Tapped Screw B3 x 8
005E	2		2		51420308T0	O.C.H. Tapped Screw O3 x 8
005E		1		1	1455259030	Bushing, AC Cord
006E	1	1	1	1	2112265010	Indicator
007E				2	51280308U0	B.H. Tapped Screw B3 x 8
009E	4	4	4	4	51280308U0	B.H. Tapped Screw B3 x 8
010E	2	2	2	2	51280308U0	B.H. Tapped Screw B3 x 8
013E	1	1	1		4581861010	Label

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
△F001	1	1	1		FS10100800	Fuse 1A 250V
△F001				1	FS10350030	Fuse 3.5A 250V
△J001	1	1	1		YJ08000290	Jack, Fuse Holder
△J001				1	YJ08000300	Jack, Fuse Holder
△J021				1	YJ04000750	Jack, AC Outlet
△J091	1	1			BY05060040	Voltage Selector
△J091			1		BY05030040	Voltage Selector
△J091				1	BY05080040	Voltage Selector
△J092	1		1		YP04000590	Plug, AC Inlet
△W001		1			YC01900030	A.C. Power Cord
△W001				1	YC01800190	A.C. Power Cord

[P01-99] Main P.W. Board and General Parts

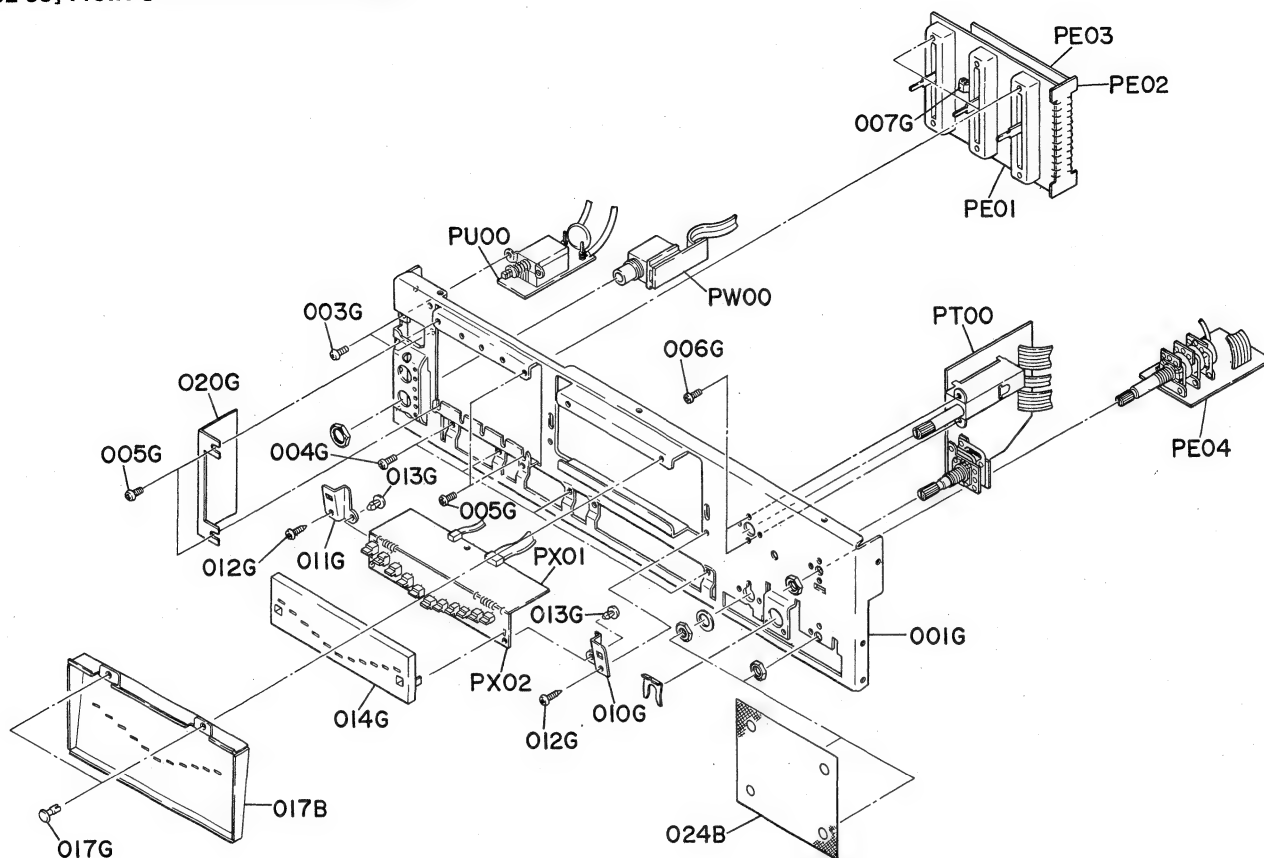


REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
001F	1	1	1	1	211H126010	Stay, Left
002F	1	1	1	1	211H126020	Stay, Right
003F	1	1	1	1	214H105010	Chassis, Transformer
005F	4	4	4	4	51280308B0	B.H. Tapped Screw B3 x 8
006F	2	2	2	2	51280308B0	B.H. Tapped Screw B3 x 8
007F	2	2	2	2	51280408B0	B.H. Tapped Screw B4 x 8
008F	1	1	1	1	51280308B0	B.H. Tapped Screw B3 x 8
010F	1	1	1	1	51280308B0	B.H. Tapped Screw B3 x 8
011F	2	2	2	2	51280308B0	B.H. Tapped Screw B3 x 8
012F	4	4	4	4	52040408A0	H. Head Bolt, F.S H4 x 8
015F	2	2	2	2	2139005010	Clamper
017F	1	1	1	1	62030049W0	Lug
020F	1	1	1	1	105H160020	Bracket
021F	1	1	1	1	2276005050	Clamper
022F	1	1	1	1	51280308B0	B.H. Tapped Screw B3 x 8
025F	1	1	1	1	211H056010	Buffer

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
018E					51280408B0	B.H. Tapped Screw B4 x 8
020E					2882861020	Label
001L	1	1	1	1	210H267010	Heatsink
003L	4	4	4	4	51260312B0	B.T. Screw B3 x 12
004L	4	4	4	4	51280308B0	B.H. Tapped Screw B3 x 8
ΔL001	1				TS18615010	Power Transformer
ΔL001		1			TS18615020	Power Transformer
ΔL001			1		TS18615030	Power Transformer
ΔL001				1	TS18615040	Power Transformer



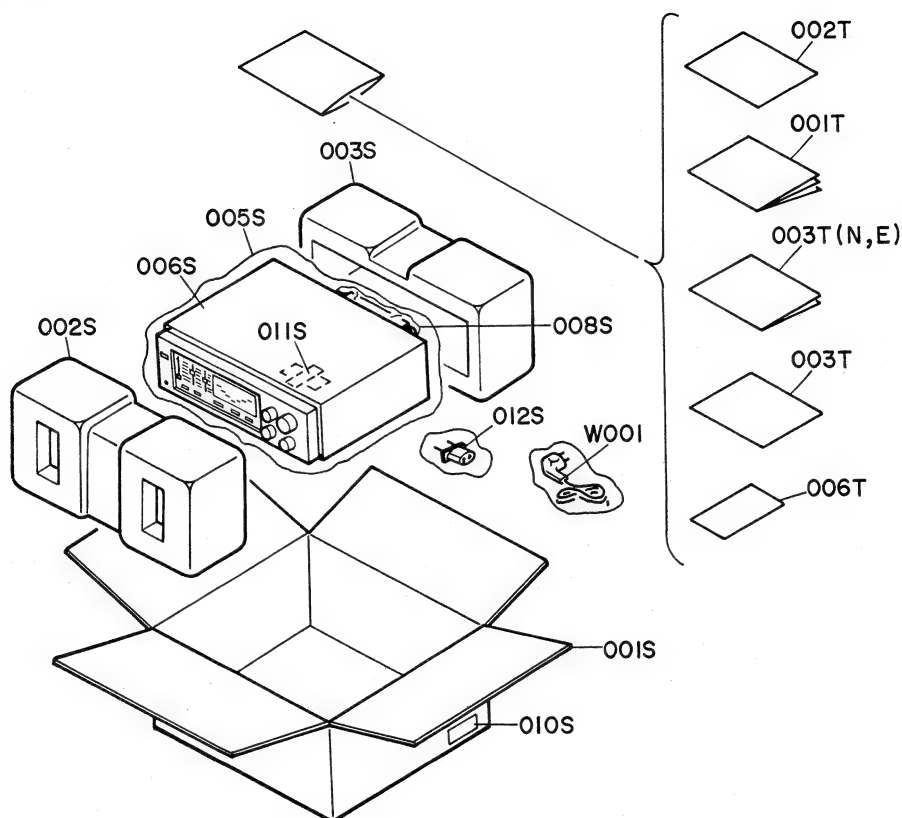
[P02-99] Front Chassis and General Parts



REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
017B	1	1	1	1	210H302010	Dial, Power Level
024B	1	1	1	1	211H303010	Mask
001G	1	1	1	1	211H160010	Bracket, Front Chassis
003G	2	2	2	2	51100306A9	B.H.M. Screw B3 x 6
004G	4	4	4	4	51100306A9	B.H.M. Screw B3 x 6
005G	4	4	4	4	51100306A9	B.H.M. Screw B3 x 6
006G	2	2	2	2	51100306A9	B.H.M. Screw B3 x 6
007G	1	1	1	1	2139271020	Holder
010G	1	1	1	1	211H160020	Bracket, Right
011G	1	1	1	1	211H160030	Bracket, Left

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
012G	2	2	2	2	51280308B0	B.H. Tapped Screw B3 x 8
013G	2	2	2	2	2965005010	Clamper
014G	1	1	1	1	208H118010	Spacer
017G	2	2	2	2	2276005050	Clamper
020G	1	1	1	1	210H109010	Shield

# [H01-99] Packing Materials



REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
001S	1	1	1		210H801010	Packing Case
001S				1	210H801030	Packing Case
002S	1	1	1	1	211H809010	Cushion, Front
003S	1	1	1	1	211H809020	Cushion, Rear
005S	1	1	1	1	9090909040	Polyethylene Sheet
006S	1	1	1	1	2918107150	Sheet
008S				1	2918107370	Sheet
010S	4	4			9526019060	Serial No. Card
010S			4		9526019030	Serial No. Card
010S				3	9526019050	Serial No. Card
011S	1	1			2731821010	Silicagel
012S				1	YJ04000240	Jack, AC Adaptor

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
001T	1	1	1	1	210H851310	Instructions
002T	1	1	1	1	210H851320	Instructions
003T	1	1			210H856010	Circuit Diagram
003T				1	9631000090	Guarantee Card
003T				1	2818854010	Guarantee Card
006T				1	9650000010	S. Station Card
ΔW001	1				ZC01805030	A.C. Power Cord
ΔW001				1	ZC02006030	A.C. Power Cord

## 6. ELECTRICAL PARTS LIST

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
P400	1	1	1	1	YK210H2550	P400-PHONO AMP. CIRCUIT BOARD
	1				ZZ210H8550	P.W. Board, Phono Amp.
		1	1	1	ZZ210H7550	P.W. Board Assembly
						P.W. Board Assembly
P400-CAPACITORS						
C401	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C402	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C403	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C404	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C405	1	1	1	1	DK16221300	Ceramic 220pF $\pm$ 10%
C406	1	1	1	1	DK16221300	Ceramic 220pF $\pm$ 10%
C407	1	1	1	1	DK16221300	Ceramic 220pF $\pm$ 10%
C408	1	1	1	1	DK16221300	Ceramic 220pF $\pm$ 10%
C409	1	1	1	1	DF16332300	Film 3300pF $\pm$ 10%
C410	1	1	1	1	DF16332300	Film 3300pF $\pm$ 10%
C411	1	1	1	1	DF16332300	Film 3300pF $\pm$ 10%
C412	1	1	1	1	DF16332300	Film 3300pF $\pm$ 10%
C413	1	1	1	1	DF16123300	Film 0.012 $\mu$ F $\pm$ 10%
C414	1	1	1	1	DF16123300	Film 0.012 $\mu$ F $\pm$ 10%
C415	1	1	1	1	DF16123300	Film 0.012 $\mu$ F $\pm$ 10%
C416	1	1	1	1	DF16123300	Film 0.012 $\mu$ F $\pm$ 10%
C417	1	1	1	1	DK17103300	Ceramic 0.01 $\mu$ F $\pm$ 20%
C418	1	1	1	1	DK17103300	Ceramic 0.01 $\mu$ F $\pm$ 20%
C419	1	1	1	1	DK17103300	Ceramic 0.01 $\mu$ F $\pm$ 20%
C420	1	1	1	1	DK17103300	Ceramic 0.01 $\mu$ F $\pm$ 20%
C421	1	1	1	1	EA10701630	Elect 100 $\mu$ F 16V
C422	1	1	1	1	EA10701630	Elect 100 $\mu$ F 16V
C423	1	1	1	1	EA10701630	Elect 100 $\mu$ F 16V
C424	1	1	1	1	EA10701630	Elect 100 $\mu$ F 16V
C425	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C426	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C427	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C428	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C430	1	1	1	1	DK17103300	Ceramic 0.01 $\mu$ F $\pm$ 20%
C431	1	1	1	1	DK17103300	Ceramic 0.01 $\mu$ F $\pm$ 20%
C432	1	1	1	1	DK17103300	Ceramic 0.01 $\mu$ F $\pm$ 20%
P400-RESISTORS (All Resistors are $\pm$ 5% & $\frac{1}{4}$ W)						
R401	1	1	1	1	GD05154140	150K $\Omega$
R402	1	1	1	1	GD05154140	150K $\Omega$
R403	1	1	1	1	GD05154140	150K $\Omega$
R404	1	1	1	1	GD05154140	150K $\Omega$
R405	1	1	1	1	GD05683140	68K $\Omega$
R406	1	1	1	1	GD05683140	68K $\Omega$
R407	1	1	1	1	GD05683140	68K $\Omega$
R408	1	1	1	1	GD05683140	68K $\Omega$
R409	1	1	1	1	GD05222140	2.2K $\Omega$
R410	1	1	1	1	GD05222140	2.2K $\Omega$
R411	1	1	1	1	GD05222140	2.2K $\Omega$
R412	1	1	1	1	GD05222140	2.2K $\Omega$
R413	1	1	1	1	GD05561140	560 $\Omega$
R413	1	1	1	1	GD05561140	560 $\Omega$
R415	1	1	1	1	GD05561140	560 $\Omega$
R416	1	1	1	1	GD05561140	560 $\Omega$
R417	1	1	1	1	GD05223140	22K $\Omega$
R418	1	1	1	1	GD05223140	22K $\Omega$
R419	1	1	1	1	GD05223140	22K $\Omega$
R420	1	1	1	1	GD05223140	22K $\Omega$

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
R421	1	1	1	1	GD05274140	270K $\Omega$
R422	1	1	1	1	GD05274140	270K $\Omega$
R423	1	1	1	1	GD05274140	270K $\Omega$
R424	1	1	1	1	GD05274140	270K $\Omega$
R425	1				GD05561140	560 $\Omega$
R425	1	1	1	1	GG05101140	100 $\Omega$
R426	1				GD05561140	560 $\Omega$
R426	1	1	1	1	GG05101140	100 $\Omega$
R427	1				GD05561140	560 $\Omega$
R427	1	1	1	1	GG05101140	100 $\Omega$
R428	1				GD05561140	560 $\Omega$
R428	1	1	1	1	GG05101140	100 $\Omega$
R429	1	1	1	1	GD05103140	10K $\Omega$
R430	1	1	1	1	GD05103140	10K $\Omega$
R431	1	1	1	1	GD05103140	10K $\Omega$
R432	1	1	1	1	GD05103140	10K $\Omega$
Q401	1	1	1	1	HC10008090	P400-ICs IC MJM4558D-D
Q402	1	1	1	1	HC10008090	IC MJM4558D-D
JV01	1	1	1	1	YT02040340	P400-MISCELLANEOUS RCA Pin Jack (4P)
JV02	1	1	1	1	YT02040340	RCA Pin Jack (4P)
W401	1	1	1	1	YU06240260	Jumper Lead, Phono Out
W402	1	1	1	1	YU06240260	Jumper Lead, Speaker Out
P700	1	1	1	1	YK210H1610	P700-MAIN AMP. CIRCUIT BOARD
	1				ZZ210H8610	P.W. Board, Main Amp.
		1	1	1	ZZ210H7610	P.W. Board Assembly
						P.W. Board Assembly
P700-CAPACITORS						
C701	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C702	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C703	1	1	1	1	DD15680370	Ceramic 68pF $\pm$ 5%
C704	1	1	1	1	DD15680370	Ceramic 68pF $\pm$ 5%
C705	1	1	1	1	EA10701030	Elect 100 $\mu$ F 10V
C706	1	1	1	1	EA10701030	Elect 100 $\mu$ F 10V
C707	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C708	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
C711	1	1	1	1	DD11100300	Ceramic 10pF $\pm$ 0.5pF
C712	1	1	1	1	DD11100300	Ceramic 10pF $\pm$ 0.5pF
C713	1	1	1	1	EA47603530	Elect 47 $\mu$ F 35V
C714	1	1	1	1	EA47603530	Elect 47 $\mu$ F 35V
C715	1	1	1	1	DF17103300	Ceramic 0.01 $\mu$ F $\pm$ 20%
C716	1	1	1	1	DF17103300	Ceramic 0.01 $\mu$ F $\pm$ 20%
C717	1	1	1	1	DF17102300	Ceramic 0.001 $\mu$ F $\pm$ 20%
C718	1	1	1	1	DF17102300	Ceramic 0.001 $\mu$ F $\pm$ 20%
C719	1	1	1	1	DF17102300	Ceramic 0.001 $\mu$ F $\pm$ 20%
C720	1	1	1	1	DF17102300	Ceramic 0.001 $\mu$ F $\pm$ 20%
C725	1	1	1	1	DF16473540	Film 0.047 $\mu$ F $\pm$ 10%
C726	1	1	1	1	DF16473540	Film 0.047 $\mu$ F $\pm$ 10%
C727	1	1	1	1	DK16151300	Ceramic 150pF $\pm$ 10%
C728	1	1	1	1	DK16151300	Ceramic 150pF $\pm$ 10%
C729	1	1	1	1	DK16221300	Ceramic 220pF $\pm$ 10%
C730	1	1	1	1	DK16221300	Ceramic 220pF $\pm$ 10%

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
△C801	1	1	1	1	EB68805520	Elect 6800μF 55V
△C802	1	1	1	1	EB68805520	Elect 6800μF 55V
△C803	1	1	1	1	DK18103560	Ceramic 0.01μF
C805	1	1	1	1	EA10705030	Elect 100μF 50V
△C807	1	1	1	1	EA47605030	Elect 47μF 50V
△C808	1	1	1	1	EA47605030	Elect 47μF 50V
C809	1	1	1	1	DK17103300	Ceramic 0.01μF ±20%
C810	1	1	1	1	DK17103300	Ceramic 0.01μF ±20%
C811	1	1	1	1	EA10602530	Elect 10μF 25V
C812	1	1	1	1	EA10602530	Elect 10μF 25V
CN01	1	1	1	1	EA33700630	Elect 330μF 6.3V
CN02	1	1	1	1	EA10505030	Elect 1μF 50V
CN03	1	1	1	1	EA10705030	Elect 100μF 50V
CS01	1	1	1	1	DK16271300	Ceramic 270pF ±10%
CS02	1	1	1	1	DK16271300	Ceramic 270pF ±10%
CS03	1	1	1	1	DF16683300	Film 0.068μF ±10%
CS04	1	1	1	1	DF16683300	Film 0.068μF ±10%
CS05	1	1	1	1	EA33505030	Elect 3.3μF 50V
CS06	1	1	1	1	DK16331300	Ceramic 330pF ±10%
CS07	1	1	1	1	EA10605030	Elect 10μF 50V
CS08	1	1	1	1	DF16123300	Film 0.012μF ±10%
CS09	1	1	1	1	DF16102300	Film 1000pF ±10%
CS10	1	1	1	1	EA33505030	Elect 3.3μF 50V
CS11	1	1	1	1	EA33505030	Elect 3.3μF 50V
CS12	1	1	1	1	EA33505030	Elect 3.3μF 50V
CS13	1	1	1	1	DD11100370	Ceramic 10pF ±0.5pF
CS14	1	1	1	1	DD11100370	Ceramic 10pF ±0.5pF
CS15	1	1	1	1	EA33505030	Elect 3.3μF 50V
CS16	1	1	1	1	EA33505030	Elect 3.3μF 50V
CS18	1	1	1	1	DK18103300	Ceramic 0.01μF
CS19	1	1	1	1	DK18103300	Ceramic 0.01μF
CS20	1	1	1	1	DK18103300	Ceramic 0.01μF
CS21	1	1	1	1	DK18103300	Ceramic 0.01μF
<b>P700-RESISTORS</b> (All Resistors are ±5% & ¼W)						
R701	1	1	1	1	GD05471140	470Ω
R702	1	1	1	1	GD05471140	470Ω
R703	1	1	1	1	GD05333140	33KΩ
R704	1	1	1	1	GD05333140	33KΩ
R705	1	1	1	1	GD05103140	10KΩ
R706	1	1	1	1	GD05103140	10KΩ
R707	1	1	1	1	GD05393140	39KΩ
R708	1	1	1	1	GD05393140	39KΩ
R709	1	1	1	1	GD05222140	2.2KΩ
R710	1	1	1	1	GD05222140	2.2KΩ
R711	1	1	1	1	GD05104140	100KΩ
R712	1	1	1	1	GD05104140	100KΩ
R717	1	1	1	1	GD05333140	33KΩ
R718	1	1	1	1	GD05333140	33KΩ
R719	1	1	1	1	GG05332140	3.3KΩ
R720	1	1	1	1	GG05332140	3.3KΩ
R721	1	1	1	1	GG05332140	3.3KΩ
R722	1	1	1	1	GG05332140	3.3KΩ
R723	1	1	1	1	GD05222140	2.2KΩ
R724	1	1	1	1	GD05222140	2.2KΩ

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
R725	1	1	1	1	RA02020180	2KΩ(B) Trimming
R726	1	1	1	1	RA02020180	2KΩ(B) Trimming
R727	1	1	1	1	GD05122140	1.2KΩ
R728	1	1	1	1	GD05122140	1.2KΩ
R729	1	1	1	1	GG05152140	1.5KΩ
R730	1	1	1	1	GG05152140	1.5KΩ
R733	1	1	1	1	GG05151140	150Ω
R734	1	1	1	1	GG05151140	150Ω
R735	1	1	1	1	GD05273140	27KΩ
R736	1	1	1	1	GD05273140	27KΩ
R737	1	1	1	1	GD05822140	8.2KΩ
R738	1	1	1	1	GD05822140	8.2KΩ
R739	1	1	1	1	GD05822140	8.2KΩ
R740	1	1	1	1	GD05822140	8.2KΩ
R741	1	1	1	1	GG05471140	470Ω
R742	1	1	1	1	GG05471140	470Ω
R743	1	1	1	1	GG05471140	470Ω
R744	1	1	1	1	GG05471140	470Ω
R745	1	1	1	1	GG05221120	220Ω ¼W
R746	1	1	1	1	GG05221120	220Ω ¼W
R747	1	1	1	1	GB05272020	0.27Ω 2W
R748	1	1	1	1	GB05272020	0.27Ω 2W
R749	1	1	1	1	GB05272020	0.27Ω 2W
R750	1	1	1	1	GB05272020	0.27Ω 2W
R751	1	1	1	1	GA05100020	10Ω 2W
R752	1	1	1	1	GA05100020	10Ω 2W
R753	1	1	1	1	GG05022120	2.2Ω ¼W
R754	1	1	1	1	GG05022120	2.2Ω ¼W
R755	1	1	1	1	GD05681140	680Ω
R756	1	1	1	1	GD05681140	680Ω
R757	1	1	1	1	GD05273140	27KΩ
R758	1	1	1	1	GD05273140	27KΩ
R763	1	1	1	1	GG05022140	2.2Ω
R764	1	1	1	1	GG05022140	2.2Ω
R765	1	1	1	1	GG05022140	2.2Ω
R766	1	1	1	1	GG05022140	2.2Ω
△R802	1	1	1	1	GA05222020	2.2KΩ 2W
R803	1	1	1	1	GG05182120	1.8KΩ ¼W
△R805	1	1	1	1	RF05121120	120Ω ¼W, Fusible
△R805	1	1	1	1	GG05271120	270Ω ¼W
△R806	1	1	1	1	RF05121120	120Ω ¼W, Fusible
△R806	1	1	1	1	GG05271120	270Ω ¼W
R807	1	1	1	1	GD05332140	3.3KΩ
R807	1	1	1	1	GG05152140	1.5KΩ
R808	1	1	1	1	GD05332140	3.3KΩ
R808	1	1	1	1	GG05152140	1.5KΩ
△R809	1	1	1	1	GA05820020	82Ω 2W
R810	1	1	1	1	GA05390010	39Ω 1W
RN01	1	1	1	1	GD05222140	2.2KΩ
RN02	1	1	1	1	GD05222140	2.2KΩ
RN03	1	1	1	1	GD05153140	15KΩ
RN04	1	1	1	1	GD05394140	390KΩ
RN05	1	1	1	1	GD05224140	220KΩ
RN06	1	1	1	1	GD05154140	150KΩ



REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
RS01	1	1	1	1	GD05272140	2.7K $\Omega$
RS02	1	1	1	1	GD05272140	2.7K $\Omega$
RS03	1	1	1	1	GD05273140	27K $\Omega$
RS04	1	1	1	1	GD05273140	27K $\Omega$
RS05	1	1	1	1	GD05822140	8.2K $\Omega$
RS06	1	1	1	1	GD05822140	8.2K $\Omega$
RS08	1	1	1	1	RM01040430	100K $\Omega$ (B)x2 Variable
RS09	1	1	1	1	GD05223140	22K $\Omega$
RS10	1	1	1	1	GD05222140	2.2K $\Omega$
RS11	1	1	1	1	GD05223140	22K $\Omega$
RS12	1	1	1	1	GD05821140	820 $\Omega$
RS13	1	1	1	1	GD05103140	10K $\Omega$
RS14	1	1	1	1	GD05122140	1.2K $\Omega$
RS15	1	1	1	1	GD05682140	6.8K $\Omega$
RS16	1	1	1	1	GD05821140	820 $\Omega$
RS17	1	1	1	1	GD05154140	150K $\Omega$
RS18	1	1	1	1	GD05154140	150K $\Omega$
RS19	1	1	1	1	GD05223140	22K $\Omega$
RS20	1	1	1	1	GD05223140	22K $\Omega$
RS21	1	1	1	1	GD05822140	8.2K $\Omega$
RS22	1	1	1	1	GD05822140	8.2K $\Omega$
RS23	1	1	1	1	GD05273140	27K $\Omega$
RS24	1	1	1	1	GD05273140	27K $\Omega$
RS25	1	1	1	1	GD05104140	100K $\Omega$
RS26	1	1	1	1	GD05104140	100K $\Omega$
RS27	1	1	1	1	GD05223140	22K $\Omega$
RS28	1	1	1	1	GD05223140	22K $\Omega$
RS29	1	1	1	1	GD05332140	3.3K $\Omega$
RT01	1	1	1	1	GA05331010	330 $\Omega$ 1W
RT02	1	1	1	1	GA05331010	330 $\Omega$ 1W
<b>P700-SEMICONDUCTORS</b>						
Q701	1	1	1	1	HT110162A0	Transistor 2SA1016(F or G)
Q702	1	1	1	1	HT110162A0	Transistor 2SA1016(F or G)
Q703	1	1	1	1	HT110162A0	Transistor 2SA1016(F or G)
Q704	1	1	1	1	HT110162A0	Transistor 2SA1016(F or G)
Q705	1	1	1	1	HD20003210	Diode 1S2473
Q706	1	1	1	1	HD20003210	Diode 1S2473
Q707	1	1	1	1	HT317752E0	Transistor 2SC1775A(E or F)
Q708	1	1	1	1	HT317752E0	Transistor 2SC1775A(E or F)
Q709	1	1	1	1	HT309451P0	Transistor 2SC945(P)
Q710	1	1	1	1	HT309451P0	Transistor 2SC945(P)
Q711	1	1	1	1	HT406662B0	Transistor 2SD666(B or C)
Q712	1	1	1	1	HT406662B0	Transistor 2SD666(B or C)
Q713	1	1	1	1	HD20011050	Diode 1S1555
Q714	1	1	1	1	HD20011050	Diode 1S1555
Q715	1	1	1	1	HD20011050	Diode 1S1555
Q716	1	1	1	1	HD20011050	Diode 1S1555
Q717	1	1	1	1	HD20002210	Diode 1S2472
Q718	1	1	1	1	HD20002210	Diode 1S2472
Q719	1	1	1	1	HD20002210	Diode 1S2472
Q720	1	1	1	1	HD20002210	Diode 1S2472

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
Q721	1	1	1	1	HT309451Q0	Transistor 2SC945(Q)
Q722	1	1	1	1	HT309451Q0	Transistor 2SC945(Q)
Q723	1	1	1	1	HT107331Q0	Transistor 2SA733(Q)
Q724	1	1	1	1	HT107331Q0	Transistor 2SA733(Q)
Q725	1	1	1	1	HT404152B0	Transistor 2SD415(Q or R)
Q726	1	1	1	1	HT404152B0	Transistor 2SD415(Q or R)
Q727	1	1	1	1	HT205492B0	Transistor 2SB549(Q or R)
Q728	1	1	1	1	HT205492B0	Transistor 2SB549(Q or R)
Q729	1	1	1	1	HT325782D0	Transistor 2SC2578
Q730	1	1	1	1	HT325782D0	Transistor 2SC2578
Q731	1	1	1	1	HT111032D0	Transistor 2SA1103
Q732	1	1	1	1	HT111032D0	Transistor 2SA1103
Q733	1	1	1	1	HD20005010	Diode W06B
Q734	1	1	1	1	HD20005010	Diode W06B
Q735	1	1	1	1	HD20005010	Diode W06B
Q736	1	1	1	1	HD20005010	Diode W06B
Q801	1	1	1	1	HD20011290	Diode S3V-20
Q802	1	1	1	1	HD20011290	Diode S3V-20
Q803	1	1	1	1	HD20011290	Diode S3V-20
Q804	1	1	1	1	HD20011290	Diode S3V-20
Q805	1	1	1	1	HD20005010	Diode W06B
Q806	1	1	1	1	HD30014010	Zener HZ16L
Q807	1	1	1	1	HT403132P0	Transistor 2SD313(D or E)
Q808	1	1	1	1	HT205072P0	Transistor 2SB507(D or E)
Q809	1	1	1	1	HD30014010	Zener HZ16L
Q810	1	1	1	1	HD30014010	Zener HZ16L
Q811	1	1	1	1	HD20015030	Diode DS135D
Q812	1	1	1	1	HD30042090	Zener BZ052
QN01	1	1	1	1	HT309452B0	Transistor 2SC945(P or Q)
QN02	1	1	1	1	HT309452B0	Transistor 2SC945(P or Q)
QN03	1	1	1	1	HD20015030	Diode DS135D
QN04	1	1	1	1	HT309452B0	Transistor 2SC945(P or Q)
QN05	1	1	1	1	HT107332A0	Transistor 2SA733(P or Q)
QN06	1	1	1	1	HD30023090	Zener WZ071
QN07	1	1	1	1	HD20015030	Diode DS135D
QS01	1	1	1	1	HC10008090	IC MJM4558D-D
QS02	1	1	1	1	HC10008090	IC MJM4558D-D
<b>P700-MISCELLANEOUS</b>						
F801	1				FS10500800	Fuse 5A 250V
F802	1				FS10500800	Fuse 5A 250V
J801	4				YJ08000270	Jack, Fuse Holder
J804						
JS01	1	1	1	1	YJ01001430	Jack, Mic
L701	1	1	1	1	LL23905120	Coil 1 $\mu$ H
L702	1	1	1	1	LL23905120	Coil 1 $\mu$ H
SS02	1	1	1	1	SP02030160	Push Switch
ST01	1	1	1	1	SP02020520	Push Switch, Speaker

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
W701	1	1	1	1	YU03200260	Jumper Lead
W703	1	1	1	1	YU03100260	Jumper Lead
W704	1	1	1	1	YU06360240	Jumper Lead
W705	1	1	1	1	YU03090260	Jumper Lead
W706	1	1	1	1	YU02120260	Jumper Lead
W707	1	1	1	1	YU02100260	Jumper Lead
WS01	1	1	1	1	YU03070260	Jumper Lead
WS02	1	1	1	1	YU05220260	Jumper Lead
WS03	1	1	1	1	YU06460260	Jumper Lead
WT01	1	1	1	1	YU03090260	Jumper Lead
<b>PE01-TONE VR. CIRCUIT BOARD</b>						
PE01	1	1	1	1	YK210H2510	P.W. Board, Tone VR.
	1	1	1	1	ZZ210H8510	P.W. Board Assembly
<b>PE01-CAPACITORS</b>						
CE09	1	1	1	1	DF16222300	Film 2200pF $\pm$ 10%
CE10	1	1	1	1	DF16222300	Film 2200pF $\pm$ 10%
CE11	1	1	1	1	DF16562300	Film 5600pF $\pm$ 10%
CE12	1	1	1	1	DF16562300	Film 5600pF $\pm$ 10%
CE13	1	1	1	1	DF16183300	Film 0.018 $\mu$ F $\pm$ 10%
CE14	1	1	1	1	DF16183300	Film 0.018 $\mu$ F $\pm$ 10%
CE15	1	1	1	1	DF16183300	Film 0.018 $\mu$ F $\pm$ 10%
CE16	1	1	1	1	DF16183300	Film 0.018 $\mu$ F $\pm$ 10%
<b>PE01-RESISTORS (All Resistors are <math>\pm</math>5% &amp; <math>\frac{1}{4}</math>W)</b>						
RE11	1	1	1	1	GD05562140	5.6K $\Omega$
RE12	1	1	1	1	GD05562140	5.6K $\Omega$
RE13	1	1	1	1	GD05562140	5.6K $\Omega$
RE14	1	1	1	1	GD05562140	5.6K $\Omega$
RE15	1	1	1	1	GD05223140	22K $\Omega$
RE16	1	1	1	1	GD05223140	22K $\Omega$
RE17	1	1	1	1	GD05223140	22K $\Omega$
RE18	1	1	1	1	GD05223140	22K $\Omega$
RE19	1	1	1	1	GD05223140	22K $\Omega$
RE20	1	1	1	1	GD05223140	22K $\Omega$
RE25	1	1	1	1	RS01040170	100K $\Omega$ (B) Variable, Bass
RE26	1	1	1	1	RS01040170	100K $\Omega$ (B) Variable, Mid
RE27	1	1	1	1	RS01040170	100K $\Omega$ (B) Variable, Treble
<b>PE02-CONNECTION CIRCUIT BOARD</b>						
PE02	1	1	1	1	YK210H2520	P.W. Board, Connection
<b>PE03-TONE AMP. CIRCUIT BOARD</b>						
PE03	1	1	1	1	YK210H2530	P.W. Board, Tone Amp.
	1	1	1	1	ZZ210H8530	P.W. Board Assembly
<b>PE03-CAPACITORS</b>						
CE01	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
CE02	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
CE03	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
CE04	1	1	1	1	EA33505030	Elect 3.3 $\mu$ F 50V
CE05	1	1	1	1	DK16101300	Ceramic 100pF $\pm$ 10%
CE06	1	1	1	1	DK16101300	Ceramic 100pF $\pm$ 10%
CE07	1	1	1	1	DK16101300	Ceramic 100pF $\pm$ 10%
CE08	1	1	1	1	DK16101300	Ceramic 100pF $\pm$ 10%
CE17	1	1	1	1	DF16822300	Film 8200pF $\pm$ 10%
CE18	1	1	1	1	DF16822300	Film 8200pF $\pm$ 10%
CE19	1	1	1	1	DD15560370	Ceramic 56pF $\pm$ 5%
CE20	1	1	1	1	DD15560370	Ceramic 56pF $\pm$ 5%
CE21	1	1	1	1	DK18103310	Ceramic 0.01 $\mu$ F
CE22	1	1	1	1	DK18103310	Ceramic 0.01 $\mu$ F
CE23	1	1	1	1	DK18103310	Ceramic 0.01 $\mu$ F

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
PE03-RESISTORS (All Resistors are ±5% & ¼W)						
RE01	1	1	1	1	GD05683140	68KΩ
RE02	1	1	1	1	GD05683140	68KΩ
RE03	1	1	1	1	GD05392140	3.9KΩ
RE04	1	1	1	1	GD05392140	3.9KΩ
RE05	1	1	1	1	GD05471140	470Ω
RE06	1	1	1	1	GD05471140	470Ω
RE07	1	1	1	1	GD05682140	6.8KΩ
RE08	1	1	1	1	GD05682140	6.8KΩ
RE09	1	1	1	1	GD05682140	6.8KΩ
RE10	1	1	1	1	GD05682140	6.8KΩ
RE21	1	1	1	1	GD05103140	10KΩ
RE22	1	1	1	1	GD05103140	10KΩ
RE23	1	1	1	1	GD05470140	470Ω
RE24	1	1	1	1	GD05470140	470Ω
PE03-ICs						
QE01	1	1	1	1	HC10003090	IC        4558D
QE02	1	1	1	1	HC10003090	IC        4558D
PE04-MAIN VR. CIRCUIT BOARD						
PE04	1	1	1	1	YK210H2540	P.W. Board, Main VR.
	1	1	1	1	ZZ210H8540	P.W. Board Assembly
RE28	1	1	1	1	RQ02040070	100KΩ(B)x2 Variable Resistor
PT00-SELECTOR/FADER CIRCUIT BOARD						
PT00	1	1	1	1	YK210H1640	P.W. Board, Selector/Fader
	1	1	1	1	ZZ210H8640	P.W. Board Assembly
RS07	1	1	1	1	RM01040460	100KΩ(B) Variable, Fader
RS30	1	1	1	1	GD05222140	2.2KΩ, Resistor
RS31	1	1	1	1	GD05222140	2.2KΩ, Resistor
SS01	1	1	1	1	SR04030300	Rotary Switch, Selector
PU00-POWER SWITCH CIRCUIT BOARD						
PU00	1	1	1	1	YK210H1630	P.W. Board, Power Switch
	1	1	1		ZZ210H8630	P.W. Board Assembly
		1			ZZ210H7630	P.W. Board Assembly
				1	ZZ210H9630	P.W. Board Assembly
△G001	1		1		DK18103840	Ceramic Cap. 0.01μF 250V
△G001		1		1	DK18103850	Ceramic Cap. 0.01μF 250V
△S001	1	1	1		SP01010390	Push Switch, Power
△S001				1	SP01010430	Push Switch, Power

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
PV01	1	1	1	1	YK210H1650	PV01-TAPE IN/OUT CIRCUIT BOARD
	1	1	1	1	ZZ210H8650	P.W. Board, Tape In/Out P.W. Board Assembly
CV01	1	1	1	1	DK17103300	Ceramic Cap. 0.01μF ±20%
RV01	1	1	1	1	GD05271140	Resistor 270Ω ±5% ¼W
RV02	1	1	1	1	GD05271140	Resistor 270Ω ±5% ¼W
JV03	1	1	1	1	YT02040340	Terminal, RCA Pin Jack (4P)
PV02	1	1	1	1	YK210H1660	PV02-SPEAKER CIRCUIT BOARD
	1	1	1	1	ZZ210H8660	P.W. Board, Speaker P.W. Board Assembly
JV04	1	1	1	1	YT03080010	Terminal (8P)
PW00	1	1	1	1	YK210H1620	PW00-HEADPHONE JACK CIRCUIT BOARD
	1	1	1	1	ZZ210H8620	P.W. Board, Headphone Jack P.W. Board Assembly
JW01	1	1	1	1	YJ01001400	Jack, Headphone
PX01	1	1	1	1	WN207H3210	PX01-LED LEVEL METER DRIVE CIRCUIT BOARD
	1	1	1	1	ZZ207H8210	P.W. Board, LED Level Meter Drive P.W. Board Assembly
CX01	1	1	1	1	EA33505030	PX01-CAPACITORS
CX02	1	1	1	1	EA33505030	Elect 3.3μF 50V
CX03	1	1	1	1	EA10505030	Elect 1μF 50V
CX04	1	1	1	1	EA10505030	Elect 1μF 50V
CX05	1	1	1	1	DK18103320	Ceramic 0.01μF
CX06	1	1	1	1	DK18103320	Ceramic 0.01μF
RX01	1	1	1	1	GD05103140	PX01-RESISTORS
RX02	1	1	1	1	GD05103140	(All Resistors are ±5% & ¼W)
RX03	1	1	1	1	GD05104140	10KΩ
RX04	1	1	1	1	GD05104140	10KΩ
RX07	1	1	1	1	RA02030060	20KΩ Trimming
RX08	1	1	1	1	RA02030060	20KΩ Trimming
RX25	1	1	1	1	GD05563140	56KΩ
RX26	1	1	1	1	GD05563140	56KΩ
RX27	1	1	1	1	GD05333140	33KΩ
RX28	1	1	1	1	GD05333140	33KΩ
QX01	1	1	1	1	HD30076090	PX01-SEMICONDUCTORS
QX02	1	1	1	1	HD30076090	Zener WZ038
QX03	1	1	1	1	HD20001210	Zener WZ038
QX04	1	1	1	1	HD20001210	Diode 1S2473
QX05	1	1	1	1	HC10008370	Diode 1S2473
QX06	1	1	1	1	HC10008370	IC TL489C
QX07	1	1	1	1	HC10008370	IC TL489C
QX21	1	1	1	1	HD20001210	IC 4558D
QX22	1	1	1	1	HD20001210	Diode 1S2473

REF. DESIG.	Q'TY				PART NO.	DESCRIPTION
	N	E	A	P		
JX01	1	1	1	1	YJ07000750	PX01-JACK
JX02	1	1	1	1	YJ07000760	Jack (4P)
PX02	1	1	1	1	WN207H3220	PX02-LED LEVEL METER CIRCUIT BOARD
	1	1	1	1	ZZ207H8220	P.W. Board, LED Level Meter P.W. Board Assembly
RX10	1	1	1	1	GD05181140	PX02-RESISTORS
RX11	1	1	1	1	GD05561140	(All Resistors are ±5% & ¼W)
RX12	1	1	1	1	GD05561140	180Ω
RX13	1	1	1	1	GD05561140	560Ω
RX14	1	1	1	1	GD05561140	560Ω
RX15	1	1	1	1	GD05561140	560Ω
RX16	1	1	1	1	GD05561140	560Ω
RX17	1	1	1	1	GD05561140	560Ω
RX18	1	1	1	1	GD05561140	560Ω
RX19	1	1	1	1	GD05561140	560Ω
RX20	1	1	1	1	GD05561140	560Ω
QX08	1	1	1	1	HI10006320	PX02-LED
QX09	1	1	1	1	HI10007320	L.E.D. GL-9NG9, Green
QX10	1	1	1	1	HI10007320	L.E.D. GL-9PR9, Red
QX11	1	1	1	1	HI10007320	L.E.D. GL-9PR9, Red
QX12	1	1	1	1	HI10007320	L.E.D. GL-9PR9, Red
QX13	1	1	1	1	HI10007320	L.E.D. GL-9PR9, Red
QX14	1	1	1	1	HI10007320	L.E.D. GL-9PR9, Red
QX15	1	1	1	1	HI10007320	L.E.D. GL-9PR9, Red
QX16	1	1	1	1	HI10007320	L.E.D. GL-9PR9, Red
QX17	1	1	1	1	HI10007320	L.E.D. GL-9PR9, Red
QX18	1	1	1	1	HI10007320	L.E.D. GL-9PR9, Red
(W01-99)						Assembly and Wiring
(T01-99)						Adjustment
(X01-00)						Correction

7. TECHNICAL SPECIFICATIONS

AUDIO SECTION

POWER OUTPUT PER CHANNEL

DIN 4 OHMS 1 kHz	65W
RMS 4 OHMS 1 kHz	60W
DIN 8 OHMS 1 kHz	57W
RMS 8 OHMS 1 kHz	50W
TOTAL HARMONIC DISTORTION AT RMS 8 OHMS	0.05%
I.M. DISTORTION	0.05%
DAMPING FACTOR 8 OHMS (1 kHz)	75

MM CARTRIDGE INPUT

Frequency Response (RIAA)	±0.5 dB
Signal-to-Noise Ratio	80 dB
Input Impedance	47 kohms
Input Capacitance	220 pF
Input Sensitivity	2.8 mV
Equivalent Input Noise	2.7 μV
Dynamic Range	100 dB

MC CARTRIDGE INPUT

Input Sensitivity	2.3 mV
Input Impedance	9 kohms

AUX. INPUT

Input Impedance	28 kohms
Input Sensitivity	150 mV
Frequency Response	10 Hz — 50 kHz
Signal-to-Noise Ratio	94 dB

OUTPUT VOLTAGE

Tape Out	415 mV
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OUTPUT IMPEDANCE

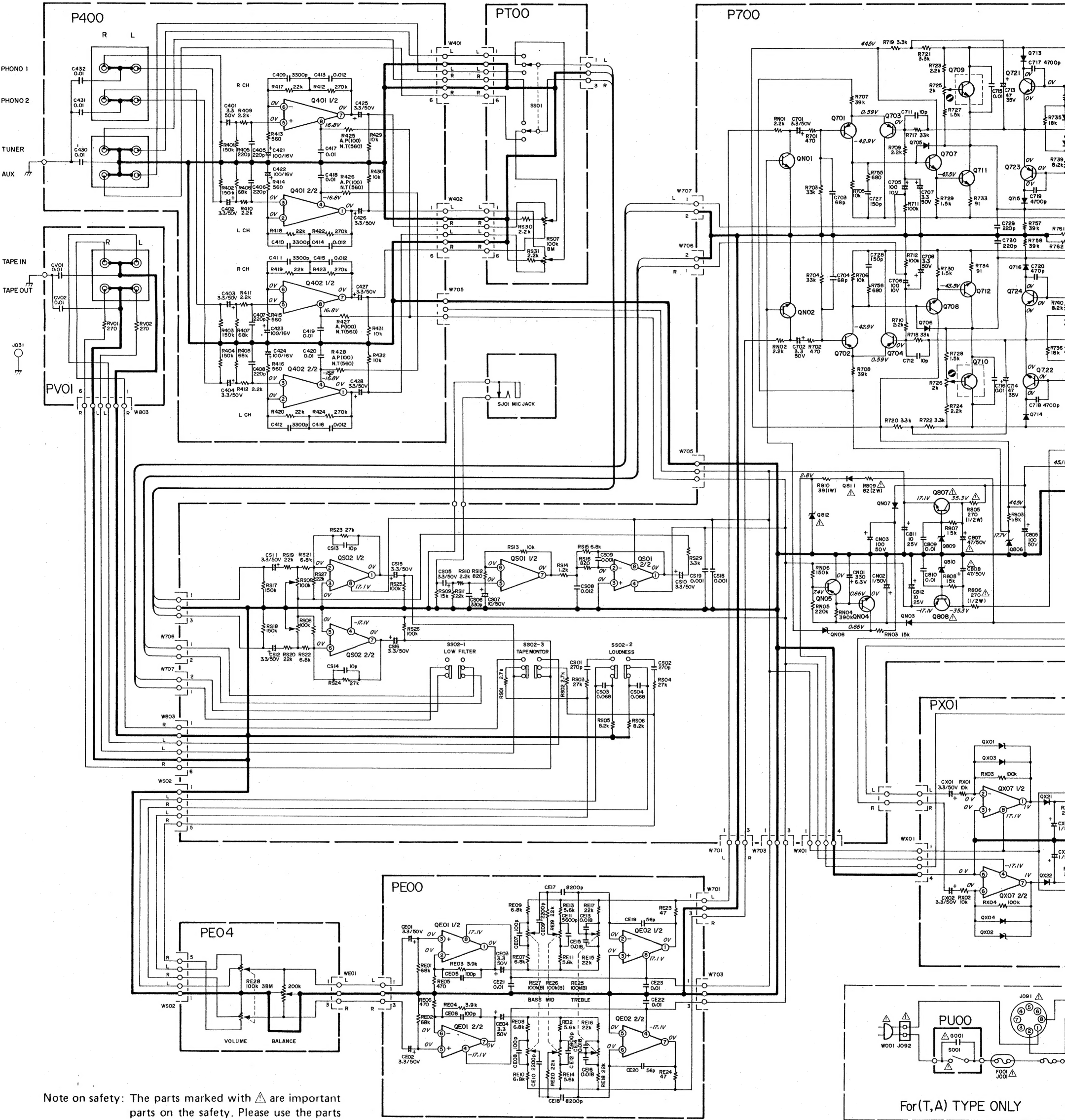
Tape Out	250 ohms
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GENERAL

Power Requirements	220V AC, 50 Hz
(E and N versions are featuring external voltage selector.	
Other versions can be converted by a qualified technician to operate on 240V.)	

Power Consumption at Rated Output, both Channels Driven	125W ± 20W
Dimensions	
Panel Width	416 mm
Panel Height	117.5 mm
Depth	329 mm
Weight	
Unit Alone	6.5 kg

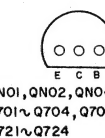
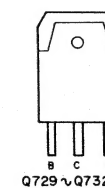
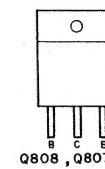
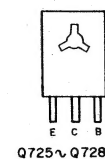
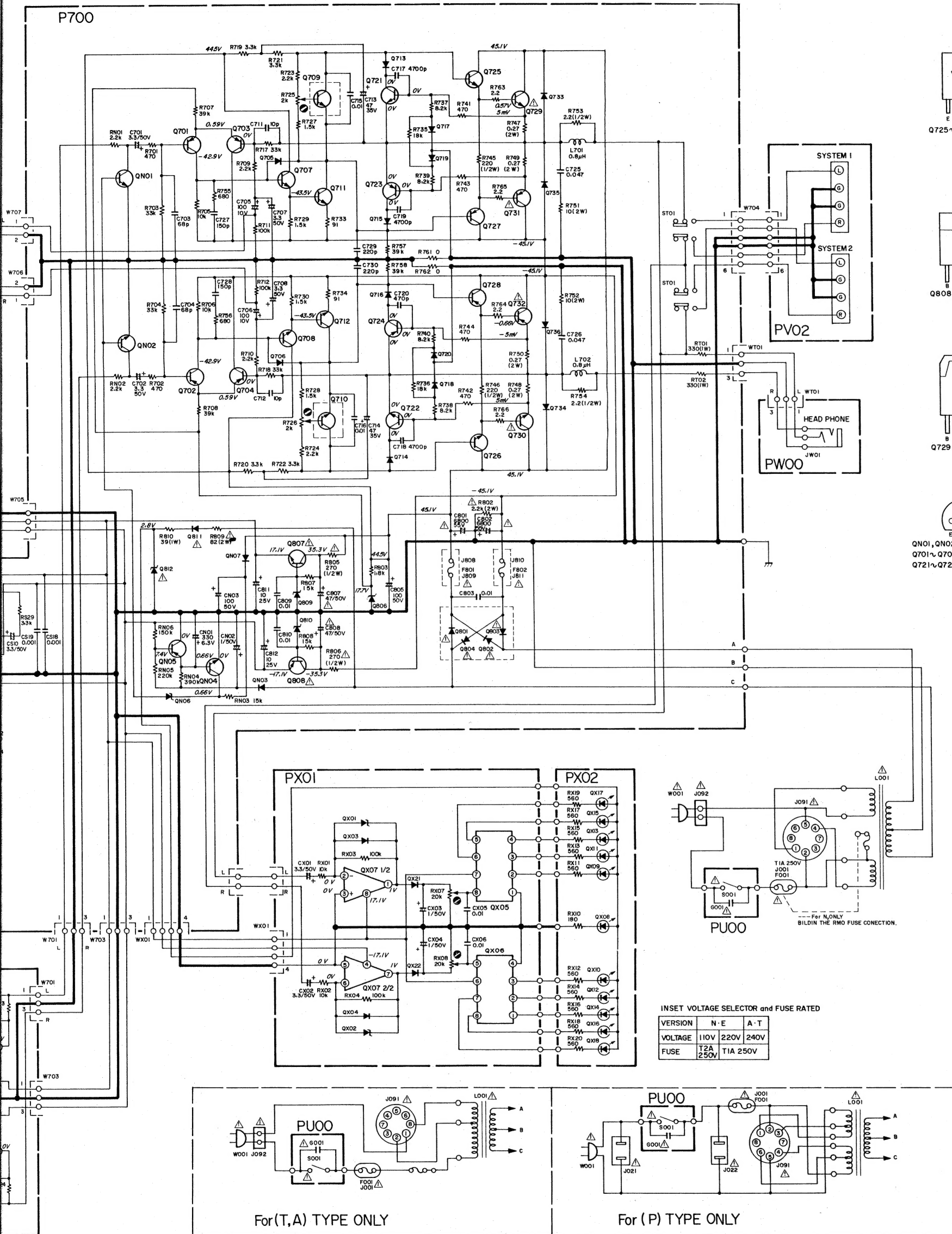
8. SCHEMATIC DIAGRAM



Note on safety: The parts marked with  $\Delta$  are important parts on the safety. Please use the parts having the designated parts number without fail.

Components and wiring are subject to change for modification without notice.





- TRANSISTOR**
- Q701 ~ Q704  
HT110162A0  
2SA1016 (ForG)
- Q707, Q708  
HT317752E0  
2SC1775A (EorF)
- Q709, Q710  
HT309451P0  
2SC945 (P)
- Q711, Q712  
HT406662B0  
2SD666 (B,C)
- Q721, Q722  
HT309451Q0  
2SC945 (Q)
- Q723, Q724  
HT107331Q0  
2SA733 (Q)
- Q725, Q726  
HT404152B0  
2SD415 (QorR)
- Q727, Q728  
HT205492B0  
2SB549 (QorR)
- Q729, Q730  
HT325782D0  
2SC2578
- Q731, Q732  
HT111032D0  
2SA11032
- Q807  
HT403132P0  
2SD313 (D,E)
- Q808  
HT205072P0  
2SA507 (D,E)
- QN04  
HT309452B0  
2SC945 (ForQ)
- QN05  
HT107332A0  
2SA733 (ForQ)
- DIODE**
- Q705, Q706  
HD20003210  
IS2471 (BLK)
- Q713 ~ Q716  
HD20011050  
IS1555
- Q717 ~ Q720  
HD20002210  
IS2472 (GRN)
- Q733 ~ Q736, Q805  
HD20005010  
W068
- Q801 ~ Q804  
HD20011290  
S3V-20
- Q806 ~ Q810  
HD30042090  
BZ-052
- Q811, QN03  
HD20015030  
DS-135D
- Q812  
HD30042090  
BZ-052
- QN06  
HD30023090  
WZ071
- QX01, QX02  
HD30076090  
WZ038
- QX03, QX04, QX21, QX22  
HD20001210  
IS2473
- QX08  
H110006320  
GL-9N69 (GRN)
- QX09 ~ QX18  
H110007320  
GL-9P99 (RED)

- IC**
- Q401, Q402  
RC10008090  
RC4558D
- QE01, QE02, QX01, QX02  
HC10003090  
MJM4558D
- QX05, QX06  
HC10008370  
TL489C

Components and wiring are subject to change for modification without notice.